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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,641	02/20/2004	James Slaski	4358-0115P	3441

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EXAMINER

SHAH, UTPAL D

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/23/2007.

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mailroom@bskb.com

Office Action Summary

Application No.

10/781,641

Applicant(s)

SLASKI, JAMES

Examiner

Utpal D. Shah

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-14 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/15/06.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Amendment received on 11/20/06 has been entered in full.

Response to Arguments

1. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 7,110,602 by Krause in view of US PG Pub 2005/0265582 by Buehler et al. (Buehler).

5. In regards to claim 1, Krause discloses a method for tracking a target, comprising (fig. 31):

receiving an input image including a target having a target position; (fig. 1)

determining at least one component in the image according to an edge direction of connected pixels within the component; (col. 10, lines 58-62, Krause discloses an edge segmenter that groups together pixels on an edge according to the edge.)

Krause does not expressly disclose associating the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component; updating the track based on the associated component to determine current target position.

However, Buehler discloses associating the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component; updating the track based on the associated component to determine current target position. (para. 68 and 69, Buehler discloses associating edges (tracks) with the components (blobs). Buehler further discloses updating the edges (tracks) to find the optimal track graph.)

Krause & Buehler are combinable because they are from the same field of endeavor i.e. target tracking. (title)

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Krause to include the track updating method of Buehler.

The suggestion/motivation for doing so would have been to be able to create a robust tracking system in the face of many difficulties e.g. occlusions, scene change etc..

Therefore, it would have been obvious to combine Krause with Buehler to obtain the invention as specified in claim 1.

6. In regards to claim 2, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

Krause further discloses wherein said determining includes determining said at least one component based on said component being located within a predetermined search window associated with an estimated target position. (col. 11, lines 5-17, Krause discloses searching a predefined area for components.)

7. In regards to claim 3, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

Krause further discloses wherein said determining includes determining said at least one component based on said pixels satisfying a predetermined threshold. (col. 11, lines 5-17, Krause discloses a threshold for determining a component.)

8. In regards to claim 4, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

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Krause does not expressly disclose wherein said updating includes determining velocity of the target.

However, Buehler discloses wherein said updating includes determining velocity of the target. (para. 64, Buehler discloses velocity of the component as one of the properties that are updated during the track updates.)

9. In regards to claim 5, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

Krause does not expressly disclose further comprising: generating a track file including the plurality of tracks; and updating the track file by associating one of the plurality of tracks in accordance with a predetermined threshold being satisfied, wherein updating the track file includes setting said one of the plurality of tracks to an established track when said predetermined threshold is satisfied, and deleting said one of the plurality of tracks when said predetermined threshold is not satisfied.

However, Buehler discloses further comprising: generating a track file including the plurality of tracks; and updating the track file by associating one of the plurality of tracks in accordance with a predetermined threshold being satisfied, wherein updating the track file includes setting said one of the plurality of tracks to an established track when said predetermined threshold is satisfied, and deleting said one of the plurality of tracks when said predetermined threshold is not satisfied. (para. 75 to 75, Buehler discloses that updating the track involves a predetermined threshold and deleting tracks that do not meet the threshold.)

10. In regards to claim 7, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

Krause does not expressly disclose wherein said associating includes assigning a weight for the association of the component to the one of the plurality of tracks.

However, Buehler discloses wherein said associating includes assigning a weight for the association of the component to the one of the plurality of tracks. (para. 72, Buehler discloses assigning weights to the tracks.)

11. In regards to claim 8, Krause and Buehler disclose all the claimed limitation of claim 7, as discussed above and incorporated herein by reference.

Krause does not expressly disclose wherein said updating includes updating the track based on the associated component having an assigned weight satisfying a predetermined threshold.

However, Buehler discloses wherein said updating includes updating the track based on the associated component having an assigned weight satisfying a predetermined threshold. (para. 74, Buehler discloses thresholds for updating the tracks.)

12. In regards to claim 9, Krause and Buehler disclose all the claimed limitation of claim 1, as discussed above and incorporated herein by reference.

Krause does not expressly disclose further comprising: generating a track to associate with the component when failing to associate the component with one of the plurality of predetermined tracks.

However, Buehler discloses further comprising: generating a track to associate with the component when failing to associate the component with one of the plurality of predetermined tracks. (para. 77, Buehler discloses generating a track for a new component.)

13. Claim 10 is similarly analyzed as claim 1.

14. In regards to claim 11, Krause and Buehler disclose all the claimed limitation of claim 10, as discussed above and incorporated herein by reference.

Krause further discloses comprising a memory to store instructions accessible by the processor. (col. 4, lines 61-67)

15. Claim 12 is similarly analyzed as claim 2.

16. Claims 13 and 14 are similarly analyzed as claims 1 and 2 respectively.

Allowable Subject Matter

17. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. In regards to claim 6, the closest prior art fails to disclose the limitation "setting said one of the plurality of tracks to an established track occurs when a number of times said one of the plurality of tracks is associated with a component exceeds a first threshold in a time period, and deleting said one of the plurality of tracks occurs when the number of times said one of the plurality of tracks is associated with a component does not exceed a second threshold in the time period." It is for these reasons that claim would be allowable if rewritten in independent form.

19. Claims 15-16 are allowed.

20. In regards to claim 15, the closest prior art combination for Krause and Buehler discloses "a method for tracking a target, comprising: receiving an input image including a target having a target position; determining a plurality of components in the image according to an edge direction of connected pixels within the component;" (col. 10, lines 58-62, Krause discloses an edge segmenter that groups together pixels on an edge according to the edge.)

"associating the plurality of components with a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component, to generate a plurality of sets of track-to-component associations wherein each component being associated with no more than one track in

a set;" (para. 68 and 69, Buehler discloses associating edges (tracks) with the components (blobs). Buehler further discloses updating the edges (tracks) to find the optimal track graph.)

However, Krause and Buehler fail to disclose "assigning a weight to each track-to-component association in a set based on the distance between each track and associated component as related to the target position; determining the best set of track-to-component associations based on the total weight, calculated by adding the assigned weight for each track-to-component association in the set, for one of the sets summing up to a minimum value, wherein the best set determines the current target position." It is for these reasons that the claim is allowable.

Claim 16 is allowed for being dependent on claim 15.

Conclusion

Examiner note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teaching for the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potential teaching all or part of the claimed invention, as well as the context of the a passage as taught by the prior art or disclosed by the examiner.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Utpal D. Shah whose telephone number is 571-272-8568. The examiner can normally be reached on M-F (9 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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